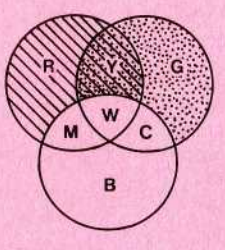
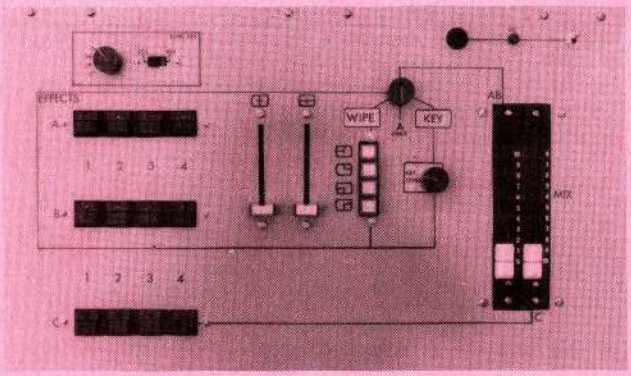
CQ-TV MAGAZINE No. 115

BRITISH AMATEUR TELEVISION CLUB

AUGUST 1981



A.B.C. COLOUR MIXER



also....

G4DYP TV LINEAR AMPLIFIERS.
NEW 23cm BAND PLAN.
I.A.R.U. BRIGHTON CONFERENCE.
MOBILE VOLTAGE REGULATOR!
AUSTRALIAN ATV.
AND LOTS MORE.....

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PLEASE NOTE: If, when writing to a committee member, a reply is required, please enclose a stamped addressed envelope or, in the case of an overseas member, an International Reply Coupon.

MEMBERSHIP

ENROLMENT FEE 50p. This applies also to persons re-joining the club after an elapsed subscription. FULL YEAR £3. April to December £2.25p. July to December £1.50p. October to December 75p. All subscriptions fall due on the first of January each year. Overseas applicants should not send foreign cheques please.

EDITORS POSTBAG

Dear ED,

I enjoy receiving the magazine because we are a bit isolated out here and it keeps me up to date with developments. I am curious, however, to know what progress has been made in regard to medium scan TV. I cannot see much future in the way it is being handled at present which requires the use of a wide band receiver. I have just completed building the slow-to-fast scan converter from 'A5' and also a hybrid fast-to-slow scan converter. I have a SC442 converter and several years ago built the original WØLMD converter which I managed to get to work successfully on 50Hz, (something of a problem).

There are two or three of us here in Johannesburg fairly active on SSTV and a couple of us are involved in colour, but we have not many builders!

Peter Towers ZS6PP

Dear ED,

A new repeater has been added to the South Australian collection, it is VK5RTN, the brain child of Jim VK5ZSA. It is on an un-powered sight North of Adelaide and runs from a wind generator. So come on over there in G. land and get cracking.*

Permission is being sought to link this new repeater with the other one, (VK5RTV) this would give a range in excess of 100 miles.

The Adelaide repeater, VK5RTV is, i'm glad to say, still going strong.

M. Lane, VK5AO

* We really are trying - honest!
(see this mag)
ED.

CONTENTS

CLOSE FOR PRESS DATE FOR THE NOVEMBER ISSUE.....20th Sept. 81.

Dear ED,

I wonder if anyone who has built the SSTV circuits in the SSTV handbook by G3RHI are able to give me details of the 5FP7 tube and the scan/focus coils to suit. Also details of the TV line o/p and 1:1 transformers, suitable types of diodes for the bridge in the video detector and finally any details of a suitable LT supply.

Any construction notes or old boards will be gratefully received and soon put to use!! Any postage will be refunded.

Graeme Caselton, RS44984
19 Cowden Road,
Orpington, Kent.
Tel: 66 29230 evenings/W/ends

Dear ED,

Today I received with great pleasure my copy of CQ-TV. Having been a member from the beginning-although I admit I have never made any contribution-I must express my admiration for you and all the members of the committee who give their time and effort to make this magazine such a success.

Regarding your editorial plea for more articles, unfortunately, from my point of view, by the time I could come up with a technical article from Greece, it is already obsolete by the standards set in the UK! I can only help you perhaps by giving you some information regarding amateur TV here in Greece.

When I came here in 1965 from Pye to organize a TV factory, TV was of course something new and amateurs were non-existent. I tried to arouse interest with local technicians to form a club but due to the high cost of equipment and the refusal by the Government to give us a license, our efforts were mainly closed circuit, using two old 931As I brought from England, a standard TV chassis for FSS and many old circuits from past issues of CQ-TV. When colour started, experimentally in 1975, it was in PAL and SECAM 11, then the Government from 1st Jan. 81 made official SECAM 111b, so you can imagine the confusion amongst many amateurs! However I have managed to get together a small group of interested technicians but our problem is where to find information for SECAM 111b coders . I have written to the club in the past for help and was given an address in France where I wrote but got no answer. I put an advert in CQ-TV for a coder, but again no response So you see our efforts to start up a local club are bogged down by lack of technical information on this subject. Perhaps you might be able to suggest a contact with any other amateur using SECAM 111b for an exchange of ideas, otherwise we shall have to continue with our closed-circuit PAL.

E.W. Mercer , Athens.

EDITORS NOTE.

A trawl of likely members resulted in a fair amount of information which included a complete constructional article for a SECAM 111b coder. The information has been passed on.

Dear ED,

I have been very interested in video for a number of years, but only recently have I made the effort to get together an ATV rig.

About two months ago, for the first time, GM3DOD received my signal in the James Watt college, in Greenock, and, of course, we were over the moon. Since then, GM3XGX, GM3HZN and GM3ZXG have all taken my test transmissions.

The station consists of the usual HF/VHF and now at last ATV rigs. The ATV set-up is a TX432 exciter followed by a VHF engineering PA which is currently being run at 10Watts

but is capable of 40Watts. The modulator, sync generator and video processor are all home brew. I have now managed, with the aid of GM4CBV and GM4HZN to get my 70cm beam up to a height of 40 feet and as the QTH is about 300 ft asl, we feel that a reasonable signal should be heading up the Clyde valley.

I would like to hear from other active ATV stations in this area, with a view to some sort of inter-club video as this may have the effect of arousing more interest in this fascinating mode of amateur radio.

I must add that the BATC magazine has created a "wee bit of a stir" in this area, as everyone who has had a look have been very interested and most impressed by the content and quality of the articles.

Keep up the good work boys, and best 73 from Greenock.

A.McKenzie, GM3WFI
36 Glencairn Road,
Greenock,
Renfrewshire.

FROM THE EDITOR.

The magazine, as you can see, is larger than usual but I wouldn't like to say that this will be a regular thing. Anyone who has sent material for publication which has not yet been used is asked to be patient since a fair amount has had to be held over in the interests of producing a reasonably balanced magazine. Please don't stop sending in the items though.

John Wood.

TO WHOM TO WRITE.

When requesting services from the BATC please ensure that your letters and orders are sent to the correct address. Failure to do so causes extra expense, extra work for the officer concerned, and most important, cause delays in replying.

OVERSEAS SUBSCRIPTIONS.

Due to postal delays to foreign mail subscriptions are often arriving late. It is a good idea for overseas members to send their subscriptions early to ensure the non-interruption of CQ-TV. Members should ensure that their renewels arrive by Christmas.

Overseas members may have their CQ-TV sent via air mail, the extra charges are;

Europe	£1.00 per year
Zone A	£1.25 per year
Zone B	£1.75 per year
Zone C	£2.00 per year

Principal countries and their zones are as follows;

Argentina	B
Australia	C
Bahrain	A
Barbados	B
Canada	B
Egypt	A
Hong Kong	B
India	B
Israel	A
Japan	C
Kenya	B
Kuwait	A
Malaysia	B
New Zealand	C
Nigeria	B
Oman	A
Pakistan	B
Saudi Arabia	A
Singapore	B
South Africa	B
United Arab Emirates	A
U.S.A.	B
Zambia	B

Subscriptions should be sent by cheque drawn on an English bank made payable to "the BATC" and sent to: Mr.A.Rix. 17 Forest Drive East, London, E11 1JX England.

Basic subscription for 1982, £3.00

HANDBOOK SALES.

BATC publications reports that handbook sales by now will have topped the 1,500 mark! I guess we will need a re-print soon.

Sales of PC boards and components for handbook projects are also going well.

EXHIBITIONS.

The BATC will have a stand at the new Midlands VHF convention to be held on Saturday, October 10th 1981 at the Wolverhampton Polytechnic.

As a good trade show is now an expected part of any amateur function, this will be no exception. However, the organisers are aiming specifically at the more experimentally minded section of the VHF-UHF community. There should be a good market for specialist components and equipment.

Further information from M.Crampton G8DLX.16 Percival Road, Rugby. Warks.

BATC's NEW PRESIDENT.

The BATC has great pleasure in announcing it's new president Mr. Roger Appleton who is chief engineer for London Weekend Television.

It is hoped to give some background on Mr.Appleton in the next issue.

The BATC would like to thank the retiring President Mr. R.C. Hills for acting for us during his term of office, and would like to wish him every success in the future.

MEMBERS FROM THE ORIENT.

Brian Summers, the membership secretary, has reported the enrolement of several new members from India. The club would like to welcome them, and hope that they will communicate both with each other and with other members throughout the world. We look forward to hearing occasional reports of amateur television activity in India.

CLUB SALES.

Grant Dixon reports that some members are making out cheques for club sales to him personally and indeed some are requesting items in letters to other officials. Please ensure that all cheques are made out to "the BATC". Overseas members should send cheques drawn on English banks.

SORRY I ASKED!

The following is part of a letter from John Goode in reply to a members enquiry about SECAM 111(b), (see letters).

....I assume that SECAM 111(b) is the latest variation of the system that employs back-porch synchronisation of the D_R (R-Y) and D_B (B-Y) sequencing, rather than the system used in France, where synchronisation of the colour sequencing is achieved by transmitting 9 lines of sub-carrier (deviated by a truncated sawtooth) during the field blanking period. This is presumably to allow the vertical interval to be left clear for V.I.T.S., Teletext etc. and seems to be the preferred version for countries newly adopting SECAM 111.....

AERIAL CATALOGUE.

The latest catalogue from South W est Aerial Systems has been received by the editor.

The catalogue, which is very well presented, lists a full range of DXTV and domestic aerials and accessories for UHF, bands 1 and 3, combinations, portables and specials, in fact anything you could want (excepting amateur!)

A full range of masthead and set back amplifiers and distribution systems are also included as are masts, lashings, clamps, brackets and a host of sundries. A useful dB to voltage chart is also given.

The catalogue, which costs 45p is available from; South West Aerial Systems, 10 Old Boundary Road, Shaftesbury, Dorset. SP7 8ND.

CIRCUIT NOTEBOOK

JOHN LAWRENCE, GW3JGA No.30

An increasing number of radio amateurs, keen to get started with amateur television, purchase a surplus camera as their first picture source.

Most surplus cameras provide composite video out and have no provision for feeding-in external synchronising signals. This is not a serious problem until a second video source is contemplated and the question of synchronising the two sources arises.

One way of solving the problem is to build a sync-pulse generator and modify the camera(s) to accept mixed syncs or line drive (sync) and field drive. The sync separator circuit to be described could be used in the camera for taking in mixed syncs and providing line and separate field drive, as shown in Fig. 1.

Alternatively, if you only want to add your call sign to the camera picture, then the sync separator can be used to generate line and field sync for this from the camera composite video, as shown in Fig. 2. This arrangement could also be used for slaving a second camera from camera 1.

The circuit is shown in Fig. 3 and can be considered in two parts, the sync separator and the field pulse generator.

Tr1 is an inverting buffer amplifier with a gain of about 8. Tr2 is an inverting clipper stage. Sync bottom is absorbed by R12 and the negative going video cuts off Tr2. Non-inverted mixed syncs appear at Tr2 collector.

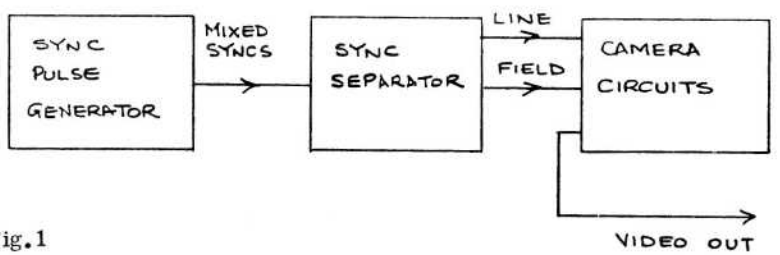


Fig.1

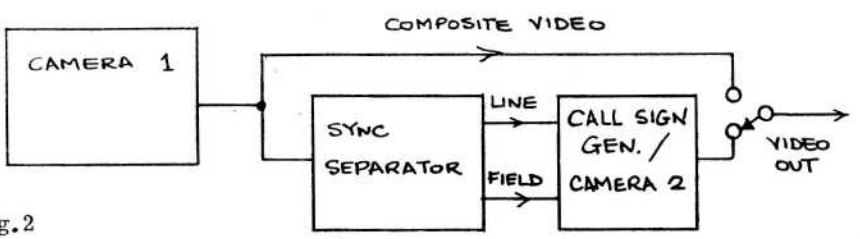


Fig.2

The field pulse generator is of the broad pulse detector type. Gates a and b form a monostable which is triggered on the negative going sync pulse edges and has a duration of about 15μS. At the end of this period, the output of gate b goes positive, providing a positive spike at one input of gate c.

If a broad field pulse is present, the other input to gate c will be high and a negative going pulse will appear at its output. This pulse is stretched by discharging C6 through D1 and allowing C6 to recharge through R11, giving a positive going field output pulse of about 100μS duration at the output of gate d.

The field pulse generator works equally well on a full field sync signal or on simple field sync as generated by most surplus cameras.

Note The I.C. should be a 4011 B (buffered type).

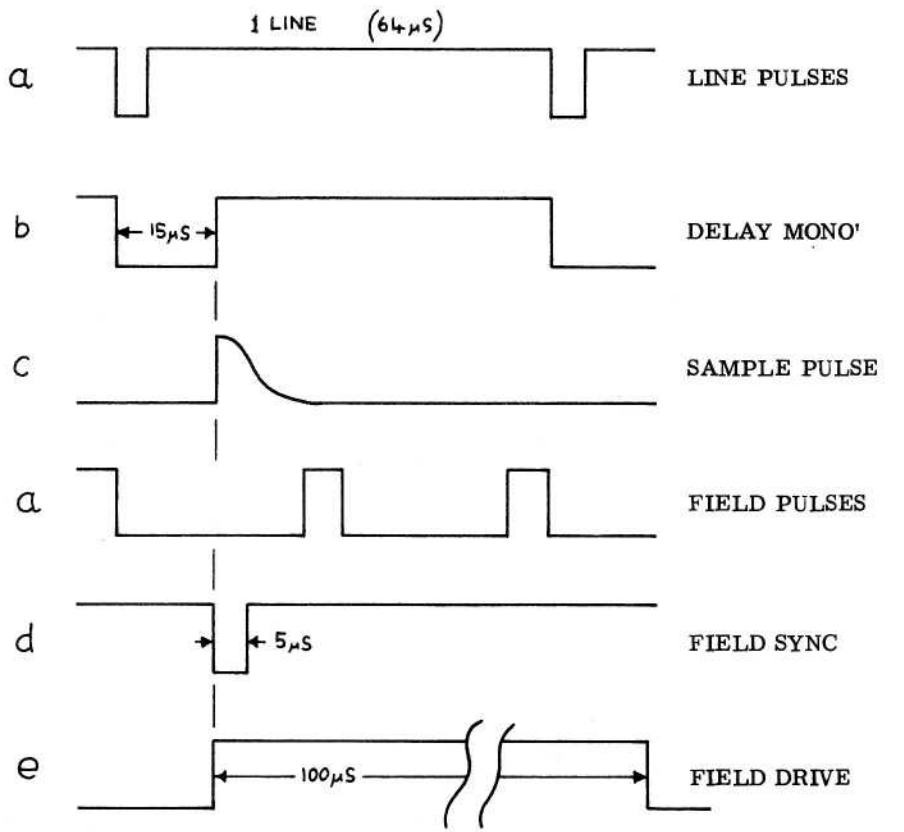


Fig. 4

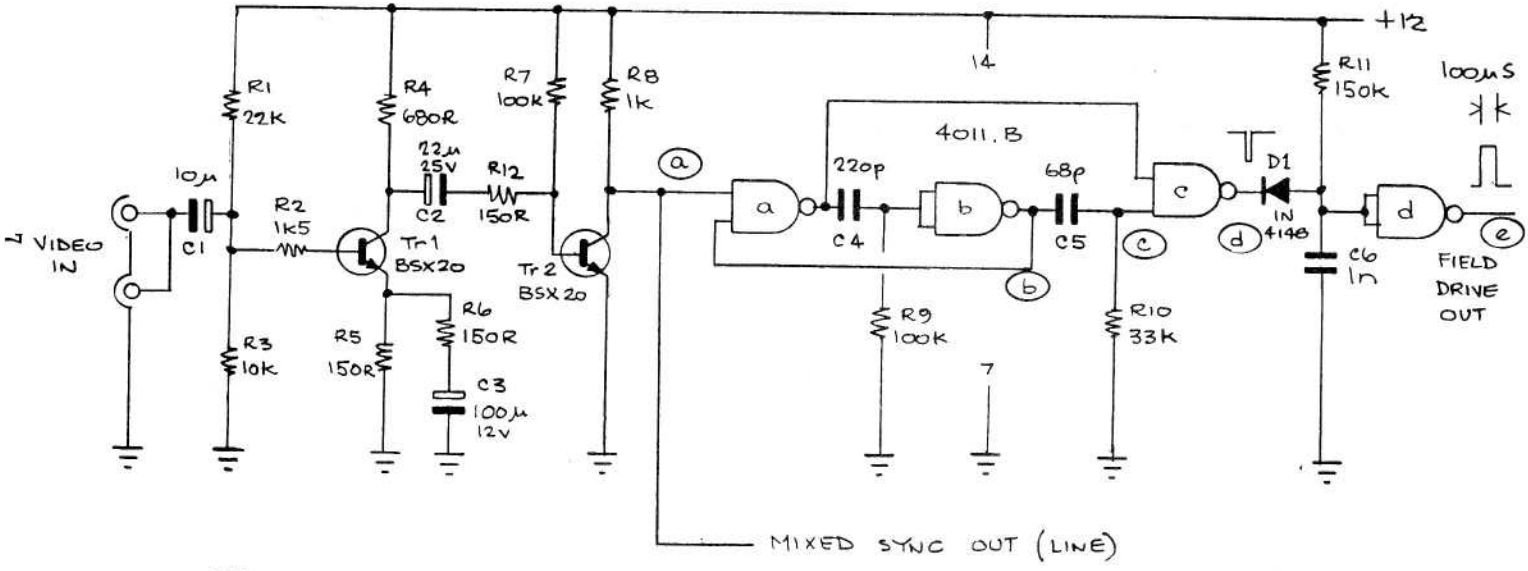

+12
14
R1
22K
R4
680R
R7
100K
R8
1K
R11
150K
100μS
10μ
C1
22μ
25V
C2
R12
150R
R2
1K5
Tr1
BSX20
Tr2
BSX20
R3
10K
R5
150R
R6
150R
C3
100μ
12V
VIDEO IN
a
4011.B
220p
C4
68p
C5
b
c
d
e
D1
IN
4148
C6
1n
R9
100K
R10
33K
7
FIELD
DRIVE
OUT
MIXED SYNC OUT (LINE)
SYNC SEPARATOR
FIELD PULSE DETECTOR - GENERATOR

FIG. 3.

TV ON THE AIR

COMPILED BY ANDREW EMMERSON, G8PTH

A mixed bag again: no dramatic lifts to report but a lot of people seem to have been building things or putting them on the air. So let's get on with it ...

Activity on 24 cm seems to be increasing and the Luton and Stoke on Trent inband repeater projects are progressing. There are rumours of a machine to cover the Slough and Thames Valley area and a plan for another (GB3KT) on the Isle of Sheppey to cover north Kent, Essex and parts of London is also afoot. The last mentioned is not expected to be on the air for a year or two, though. At the IARU conference in Brighton recently there was pressure from a few European countries to ban ATV on 70 cm - you may read more about this elsewhere in this issue - my reactions are (i) assert your "rights" on 70 cm and (ii) start reading up about 24 cm!

Peter Lindsley, G3UDV, writing from Ealing is another station who has recently changed to the new "Mickey Mouse" upconverter and finds it makes a great improvement. Video production equipment at G3UDV includes Betamax and U-Matic recorders and a bank of three monitors. Cameras in use are a Sony b/w and a JVC colour KY2000 three tube saticon (nice!). Transmitter is PC Electronics, with a DJ4LB and MM transverter setup under construction as an alternative. The only snag is a ban on outdoor aerials, but I bet Peter finds a way round this. Peter says interest in ATV in west London is on the increase, with several folk buying receive converters.

Down in Folkestone, John Stopford, G8UWS, finds himself in an unusual situation. He has several hundred feet of chalk at the bottom of his garden and has difficulty getting out on two metres, let alone with video. The only way he will ever work any UK ATV stations will be to go portable on the downs above Folkestone. But ... he can work F2XO in Boulogne any time on 10 watts. John has a borrowed colour camera and Jean, F2XO is dual-standard PAL/SECAM, so they had a good two way contact.

Moving northwest to Newbury in Berkshire, we hear from Rod Smallwood, G8DGR, who reports quite a lot of activity in the Newbury area. As well as him there are two other active TV stations, Phil, G4FXB and Nigel, G8AYC, the colour king. Rod's setup comprises a Link 101 camera, modified MM transverter driven by a modulator-cum-sync stretcher. He has a rack system containing a SPG based on the ZNA134 which gives all the usual pulses plus CSC, BG and Bars. The second module is a crosshatch generator and the third a Handbook PAL coder ("very good, worked first time"). The antenna is an 18 element Parabeam. He is not blessed with a good QTH, he reports, but he has managed 20 -30 miles with 10W peak sync under normal conditions. He closes his letter with some nice comments on the Club and how CQ-TV has improved of late. Thanks for your letter Rod; let's get some more letters from people "on the air".

From time to time I receive copies of the Benelux DX Club bulletin, which are always interesting reading. ATV gets a fair bit of mention in the reports, though since most BDXC members are in the Benelux countries the sightings reported are mainly from Germany and the Netherlands. The March issue is full of reports covering the tropo opening which occurred at the end of January, caused by a very stable inversion layer at 100 metres altitude. UK stations seen in Holland were G8EQZ, MBI, MFB and SUY. MFB is recorded twice but doesn't appear in my

callbook - does this mean we now have video pirates or is it more simply a mistake in logging!?

The BDXC bulletin also mentions some very long distance ATV contacts, which prompt some thought on ATV distance records. It mentions a contact on 27.11.79 btween EA1CR in Gijon and F1FHI in Nantes. The distance was 520 km and the video power used just 5 watts. Contact was also made by EA1CR with F3YX and F6BEZ. The next day Ryn Muntjewerff in Beemster, Holland saw EA1CR on his screen but is not sure whether it was direct or a relay from F3YX. The UK record is believed to be held by Ray Mohammed G4EGC who worked DK3NZ/T with 150W. The distance was 835 km (522 miles) and I regret the date has got lost in my filing system. The USA 70 cm TV record is (or was) W3POS - W9ZIH in 1977 (420 miles). Any updates on these figures will of course be published!

Finally, Rod Timms, G8VBC, writes to bring us up to date on the Midlands scene. Starting with G3XKX in Leicester, Derek has just finished a SD1088 linear (to a G4DYP design) and is getting good results, in colour. Paul, G8XGD at Quorn is finalising a homebrew TX. Bob, G8VBA in Burton is now on the air, also with a homebrew setup. In Burton again Dave, G8TNE, has taken a lot of ATV on his home made upconverter and is now putting the final touches to a transmitter.
Over on to Coventry, where Malc, G8UBC, is putting out a nice signal. He uses a BATC sticker - free with the last CQ-TV and much appreciated by several readers - as a test card. G4DYP in Cannock is taking a well earned rest after gaining the Diamond Award. Incidentally John's 100 mW TX design has been in service in Rod's shack for over a year now and still gives excellent results.
In Rugby John, G3YQC, must rank as one of the most active stations in the Midlands; John and Rod can exchange P5 signals in colour over a 36 mile path. Arthur, G5KS, in Birmingham puts out his usual 5s all round signal and thanks must go to him for all the help he has given over the past year, says Rod. In Shrewsbury Ken, G8DIR, can regularly exchange 3s with Rod over an 80 km path, and they have noticed that this particular path is rarely affected by lift conditions.
Chris, G4FZN, in Tamworth can be found on 70 cm radiating a computerised test card. Also in Tamworth G8SCG (John) uses a Pye pocketfone driver into a Motorola chip and gets excellent results - incidentally John was one of the first to use a Motorola chip in a homebrew design. At the time of writing Johnny Birkett in Lincoln is selling them off at £13 or so, which is a bargain compared with the list price. Construction details for a PA using this device are in the new BATC Handbook (but you know that because you've already got one, haven't you?)
Three lads in Sutton Coldfield, G8KRW (Ian), G8XUL (Dave) and G8IMN (Dennis) are using homebrew designs and can be found regularly on 70 cm. At last we come to Rod himself. He's completed his SD1434 linear and now radiates 40W peak. He has also shifted up the band to 436 MHz so that GB3CB can have a rest. He asks if anyone down south is interested in trying to work the early morning lifts that seem to occur in summer. "We could arrange to be around at 7 am, well 8 am then!, one Sunday. How about it?" Rod certainly has a good site - I can often hear him on two metres even under flat conditions, and that's down here near Canterbury.

Thanks for a super letter, Rod. I never knew there was so much going on round your way. I understand there are similar hotbeds of activity in the Crawley and Worthing areas, and I hope to feature them next time (hint). By the time this appears in print the Brighton rally will have been and gone and contact should have been made there. That's it for this time. Please keep those reports coming in and send them to me at 4 Mount Pleasant, Blean Common, CANTERBURY, Kent, CT2 9EU.

LATE FLASH. **G8JMJ and G4DVM will be out portable on either the 30th or 31st of August from either Mow Cop or Meriton Lowe. Talkback will be on 144.17 MHz SSB. (sorry no /P FM available.)**

G4DYP 70cm LINEARS

John Hopkins. G4DYP.

This article describes a set of linear amplifiers designed for use with the G4DYP 100mW TV transmitter described in CQ-TV 114 (page 3).

Four amplifiers are described with output powers ranging from ¾W to 30Watts peak output power. These enable constructors to build amplifiers up to the required output level.

The amplifiers can all be built seperately and coupled together as required using coaxial cable links, or they may be built as a single unit stringing together those stages needed for the required output power. Fig.4 shows the four amplifiers connected together to give about 30Watts peak output.

The circuits are conventional and identical to each other, they have extra decoupling of the supply rail to cope with both RF and video frequencies.

Fig.1 shows the circuit of the ¾Watt amplifier with both input and output tuned circuits and illustrates how any amplifier can be used on its own.

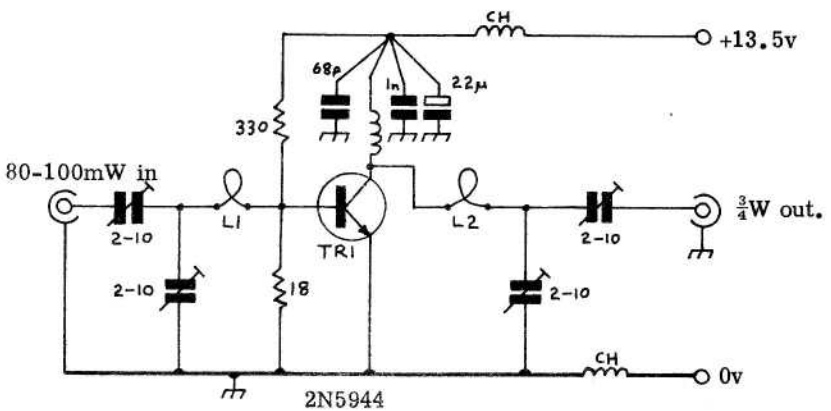


Fig.1 ¾W LINEAR AMPLIFIER

Fig. 2 shows the circuit of the 6Watt amplifier where the transistor, as with all the other amplifiers, is in grounded emitter. Again the power rail is adequately decoupled for all frequencies. This figure illustrates how any amplifier is connected to the output of another. Note that the input tuned circuit is also the output tuned circuit of the previous stage. This arrangement is used only if the two stages are to be built together.

Fig. 2 also shows the coupling arrangement used between seperate amplifiers. Particular attention should be paid to the length of the coax lead which should be a multiple of $\frac{1}{2}$ waves, this is to avoid problems with reflections on the line since the impedances at both ends are reactive.

Fig. 3 shows the 15Watt amplifier employing a SD1088 transistor and illustrates the input arrangement used for a string of one or more amplifiers.

CONSTRUCTION POINTS

Construction techniques are similar to those used in the 100mW transmitter. Pads are cut from single sided copper laminate and glued to the main copper clad board in the positions shown. Care should be taken to keep leads as short as possible. All the transistors require suitable heat sinks to dissipate the

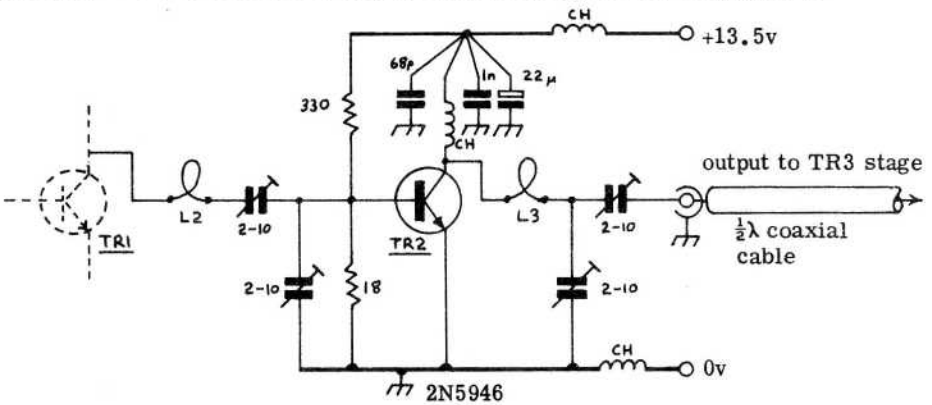


Fig. 2 6W LINEAR AMPLIFIER

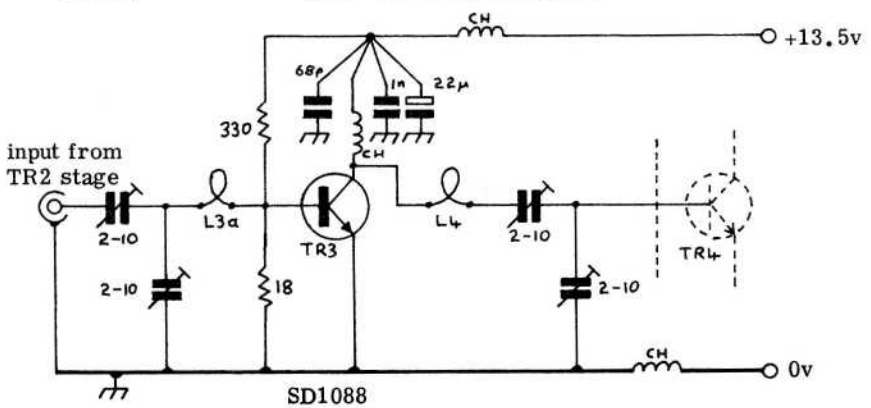
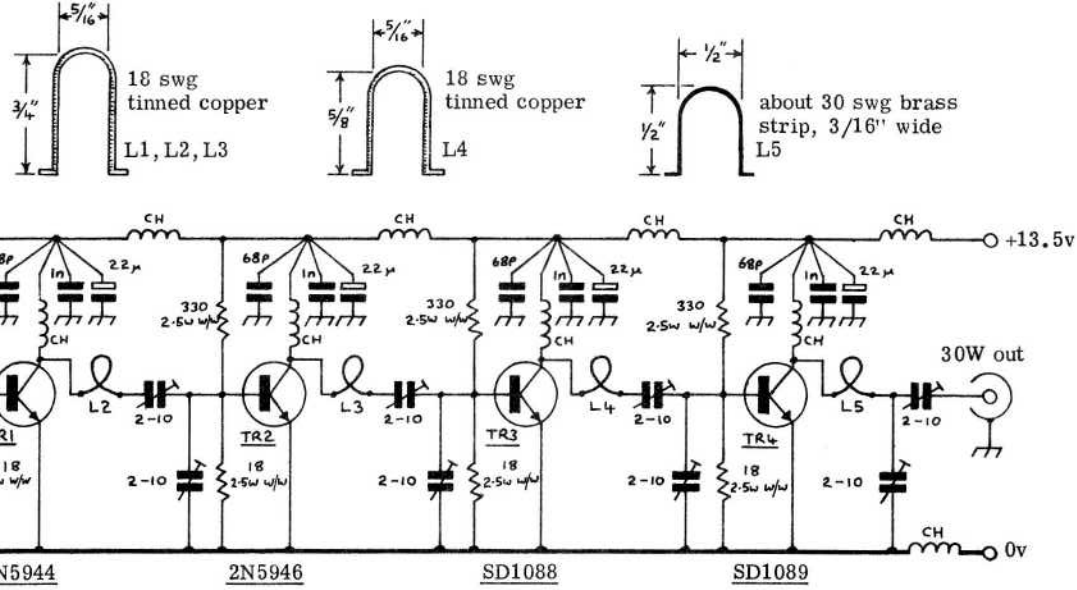


Fig. 3 15W LINEAR AMPLIFIER

NB. Inductor sizes may need altering to suit individual layouts, (usually made smaller).



All resistors 2.5W vitreous wirewound.
CH. 6t 28 swg 5/32" ID, 3/8" long.

22uF capacitors Tantalum 25v.
Trimmers min. plastic foil.

Fig.4

G4DYP 30W TV LINEAR AMPLIFIER.

fairly considerable heat generated especially by the high power stages. Don't forget that a TV transmitter is often operated continuously for quite long periods, some TVers even use a blower fan to keep the air moving across the heat sink, but this would depend on the size of the actual heat sink used.

The resistors used in the prototypes were 2.5W wirewound vitreous from RS components but no doubt other resistor types would be suitable. Lower power carbon resistors could be used in the first two stages but because of the high power dissipated in them in the larger amplifiers wirewound types should be used. A resistor failure could mean the loss of an expensive transistor.

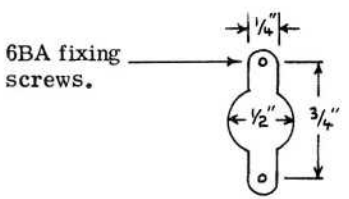
Where a transistor lug is not joined to a pad for connection purposes, a small insulated pad should be glued under the lug to prevent it accidentally shorting to the main board.

A piece of plastic tape should be stuck to the main board under the power supply rail chokes, also to avoid the possibility of an accidental short circuit.

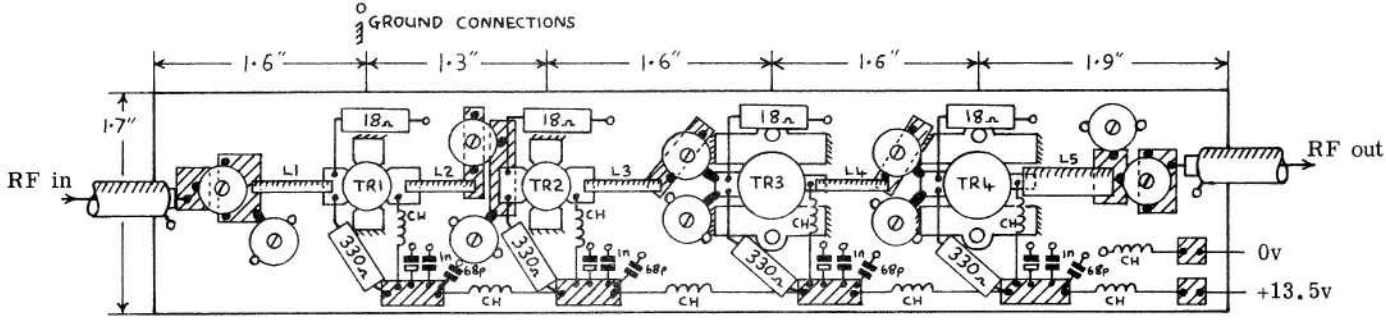
It may be necessary to trim the leads of TR1 and TR2 to make a neater, more rigid layout.

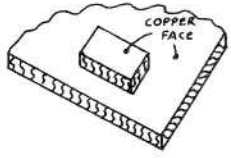
Care should be taken when mounting the capstan power transistors, the ceramic is quite easily broken if stress is applied to it whilst tightening down the stud mounting. TR1 and TR2 have a $\frac{1}{4}$" shoulder under the ceramic package. A $\frac{1}{4}$" hole to take this shoulder should be drilled in the main board. Make sure that the board used is not thicker than the shoulder otherwise pressure will be put on the ceramic when the stud is tightened. To avoid this problem either countersink the $\frac{1}{4}$" hole on the top of the board to seat the transistor below the surface, or build up the shoulder thickness with a washer. The transistor should only be soldered in after mounting is complete.

Similar problems arise when fitting TR3 and 4 except that their shoulders are shaped as illustrated below:



This shape should be cut out of the main board to enable the boss to pass through. Two 1/8" holes are drilled through the heat sink to take the 6BA screws which are used for bolting down. On the prototypes the emitter lugs were soldered to ground at each end only as shown in Fig.5.





Component mounting pads cut from PC board and 'instant' glued to main copper laminate board. Pads are shown as shaded areas.

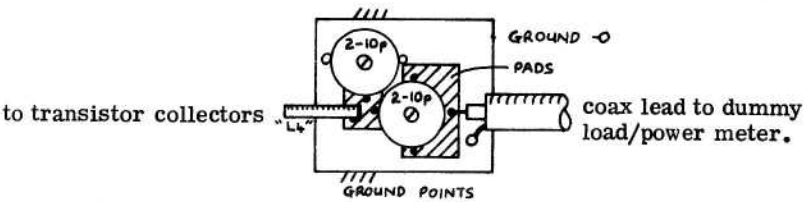
Fig. 5 BOARD LAYOUT (to approximate scale) 30W LINEAR AMPLIFIER.

CONSTRUCTION & ALIGNMENT

Construction and alignment should present little problem if the layout is followed closely. The method used on the prototypes was as follows;

NOTE - use +12v only until alignment is complete.

1. Cut the main board to the size shown in Fig. 5.
2. Drill the transistor stud mounting holes and cut-outs in the positions shown, mount the board on the heat sink and install TR1.
3. Build TR1 circuit as shown except for L2 and the two trimmers.
4. Make up a L/C output circuit using an inductor similar to L4 on a small piece of tinplate as shown below.



5. Connect a length of coax cable between the output and a 50 ohm Wattmeter and dummy load.
6. Place the temporary board adjacent to TR1 and solder the loop inductor to the collector.
7. Up-end the collector choke at the supply rail end and insert a milli-ammeter.
8. Apply +12v to the stage WITHOUT applying RF drive and check that some standing current (of the order of 10mA) is indicated.
9. Remove the meter and re-connect the choke.
10. Apply power and drive and adjust both input and output tuned circuits for maximum on the power meter.
11. Remove the temporary board and install the correct tuned circuits.

The same method is used to build and align the other three stages in turn. The standing currents will be of the order of 20mA for TR2, 40mA for TR3, and 80mA for TR4. The actual values are not critical.

When the alignment is complete, the supply may be raised to around 13.5v after which the whole amplifier should be re-peaked for maximum output on the power meter. It is useful to check the output with an absorption wavemeter for the presence of harmonics and spurious.

When video modulation is applied the output power indicated by an ordinary RMS reading power meter will drop to around half peak power, this indicates that a good modulation depth is being obtained.

The transistors for these amplifiers are available from; Modular Electronics, 95 High Street, Selsey, Nr. Chichester, Sussex. PO20 0QL.
(send SAE for lists).

BRIGHTON CONFERENCE

The IARU region 1 conference which took place at the Brighton Metropole at the end of April had several papers which directly affected amateur television. The RSGB submitted papers and the BATC were invited to present the case for British amateur television. The BATC submission is reproduced below.

Two papers presented by member organisations had direct relevance to amateur television and the proposals put forward gave cause for concern. Accordingly, Graham Shirville (G3VZV) sent, on behalf of the BATC a telex requesting that the RSGB make strong representations on behalf of European television operators. The telex is reproduced on page 18.

The conference recommended no change to the existing 70cm band plan and proposed that amateur television operation on higher frequency bands be encouraged. Proposals to force ATV activity away from 70cm were rejected.

THE USE OF THE 432 MHZ BAND FOR AMATEUR TELEVISION

A number of years ago the possible introduction of UHF FM repeaters was being discussed. One of the points that had to be considered was the possible mutual interference likely to be created by wide band A5 television signals.

In the U.K., it was decided to place repeater output, frequencies 1.6. MHZ below the input (433.25/434.85=RB10 for example). This means that interference by A5 signals is more likely to affect the repeater input but not so likely to cause trouble to the receiving station listening to the repeater output. It also means that repeater output signals are less likely to cause interference to stations receiving A5 signals.

It is now possible to examine how well this system has worked in practice based on 5 years operational experience under all conditions.

The following points have to be understood.

1. FM repeaters in U.K. use vertical antenna polarisation and TV amateurs usually horizontal polarisation with very directional antennae.
2. The Amateur Television allocation in the U.K. is 432-440 MHZ.

3. Over 80 FM repeaters are now operational in the U.K. using the "RB" system.

4. Most wideband television activity is sporadic in nature and transmissions of great length do not usually occur.

5. The power contained in the sidebands of a television signal is actually quite low.

CONCLUSIONS:

A - An initial concern that A5 signals would cause significant interference to repeater inputs has proved to be groundless and amateur television operators often monitor the local repeater to check that this does not occur.
Special filtering of the television transmitter output has not proven to be necessary.

B - Periods of high activity (contests etc.) and of good conditions have shown that although the 432 MHZ band has theoretically space for only one A5 channel the use of directional antennae greatly increases this theoretical figure. It has also been shown that even with many A5 signals being received by the antenna, operation in the SSB and FM sections of the band is unlikely to be degraded.

C - It is obvious that the "RB" FM repeater system is preferable to the "RU" repeater system which would cause considerable QRM to amateur television operation due to the greater penetration of the repeater transmitter signal as compared with a transient mobile signal.

D - The 432 MHZ band is the main communication band available to Region 1 Amateur Television operators both for local and DX work and with their increasing numbers it is essential that the band remain available for their use.

E - Five years practical experience has shown that using the separation system described above, Amateur Television can co-exist with other band users, with little or no mutual interference problems occuring.

M. CRAMPTON G8DLX
CHAIRMAN
BRITISH AMATEUR TELEVISION CLUB. NOVEMBER 1980.

2528P RSGBHQ G
261817 ALLGDL G 30.3.81

FOR THE ATTENTION OF THE GENERAL MANAGER

RE THE INTERNATIONAL AMATEUR RADIO UNION REGION 1 DIVISION CONFERENCE, BRIGHTON 27TH APRIL - 1ST MAY 1981

THE BRITISH AMATEUR TELEVISION CLUB HAS RECEIVED COPIES FROM YOU OF VARIOUS PAPERS BEING PRESENTED BY OVERSEAS SOCIETIES AT THE ABOVE CONFERENCE SOME OF WHICH RELATE TO AMATEUR TELEVISION ACTIVITY.

IN SPECIFIC TERMS WE REFER TO COMMITTEE "B" DOCUMENT BM90 FROM THE U.B.A. AND COMMITTEE "B", DOCUMENT BM97 FROM VERON.

THE FORMER DOCUMENT SEEKS TO RESTRICT AMATEUR TELEVISION TRANSMISSIONS TO A FREQUENCY ABOVE 438MHZ AND THE LATTER DOCUMENT SEEKS TO COMPLETELY REMOVE AMATEUR TELEVISION FROM THE 70CM BAND

WE WOULD BE GRATEFUL IF YOU WOULD ENSURE THAT THE R.S.G.B. REPRESENTATIVES ON THIS COMMITTEE ARE AWARE OF THE FOLLOWING FACTS AND VIEWS WHICH WERE RATIFIED AT THE B.A.T.C. COMMITTEE MEETING HELD ON MARCH 29TH 1981

1. AMATEUR TELEVISION ACTIVITY HAS TAKEN PLACE ON THE 70CMS BAND IN THE U.K. AT LEAST FOR ALMOST 30 YEARS

2. AMATEUR TELVISION ACTIVITY IN EUROPE IS NOT RESTRICTED TO A SMALL NUMBER OF OPERATORS INDEED THE LAST INTERNATIONAL CONTEST HELD IN SEPTEMBER 1980 HAD OVER 130 ENTRIES (F-49, DL-31, PAO-24, G-21, ON-14,)

3. WHILST 23CMS IS BEING INCREASINGLY USED FOR AMATEUR TELEVISION ACTIVITY THIS MUST NOT BE REGARDED AS A SUBSTITUTE FOR 70CMS AS THE BAND PERFORMANCE IS ENTIRELY DIFFERENT, AND ALREADY OUR POTENTIAL ACTIVITIES ON THAT BAND ARE BEING CONSTRAINED BY THE FORTHCOMING REDUCTION OF THE BOTTOM EDGE TO 1240 MHZ AND THE USE OF THAT BAND BY FUTURE OSCAR 3B SATELLITES

WE THEREFORE REQUEST THAT THE R.S.G.B. REPRESENTATIVES TO THE CONFERENCE MAKE THE STRONGEST POSSIBLE REPRESENTATIONS ON BEHALF OF EUROPEAN AMATEUR TELEVISION OPERATORS TO ENSURE THAT OUR ACTIVITIES ARE NOT FURTHER CONSTRAINED OR RESTRICTED, WHICH WOULD BE ONLY A CONTINUATION OF WHAT HAS HAPPENED IN THE PAST.

WE ACCEPT THAT LIFE MUST BE FULL OF COMPROMISES BUT WE BELIEVE THAT AMATEUR TELEVISION OPERATORS HAVE ALREADY MADE OVER THE YEARS MORE THAN THEIR FAIR SHARE.

WE TRUST THAT THE R.S.G.B. REPRESENTATIVES WILL DO EVERYTHING POSSIBLE FOR US.

WITH OUR THANKS IN ADVANCE
GRAHAM SHIRVILLE
G3VZV
FOR THE BRITISH AMATEUR TELEVISION CLUB

261817 ALLGDL G
25280 RSGBHQ G

Many letters have recently been written to AMSAT U.K. concerning their seeming disregard for amateur television in the 70cm band. One such letter is re-produced below. The views expressed in the letter are not necessarily those held by the BATC committee.

R.J.C. Broadbent Esq., G3AAJ
Secretary Amsat U.K.,
94 Herongate Road,
London E.12

Dear Mr Broadbent,

CONCERNING FREQUENCY ALLOCATIONS FOR AMSAT PHASE 3B SATELLITE

The Proposals

When reviewing the proposals for frequency of satellite operation, I am very concerned that they lie within the 70cm amateur T/V band. I operate high power colour television on 70cm with the vision carrier at 434 MHZ, upper sideband only, colour sideband at 438.43 and the sound carrier at 439.975.

Current Situation

We are not finding any problems from sideband stations which are, of course, 1.5 MHZ away, but we would have considerable problems, as would yourselves, with cohabitation of the upper portion of 70cm. If the case were that the satellite would only be available to users during a certain period of time during the day, such as 20 minute passes, it would be practical to go off for that period. The main problem with this is that ATV users would not follow the satellite times, to know whether a pass was imminent.

Furthering the Amateur Spirit of Construction

All ATV users, who are now quite high in number, with many more stations currently listening, to be transmitters of the future have to build or modify their own equipment, to receive or transmit. Amateurs who have done this, have, in a large percentage of cases, invested priceless time and costly components in transmitters and linears. We will understandably be most upset if this equipment becomes redundant due to impossible interferance on 70cm.

I believe that there are a number of commercial organisations who stand to gain a considerable amount by producing boxes to operate in 70cm for satellite operation. I see much more to be gained by satellite enthusiasts building equipment themselves for 23cm than going out to purchase a black box.

Put ATV on 23cm

This is not a viable proposal, as most DX contacts are over hilly terrain and would disable about 50% of my own normal contacts due to non line of sight paths as I am only 25 feet above sea level.

Overview

Please consider carefully the comments that I have made as we, the 70cm ATV users, feel heavily committed to that band with all the equipment thus far constructed.

Yours sincerely,

M. J. Sanders

Mike Sanders G8LES

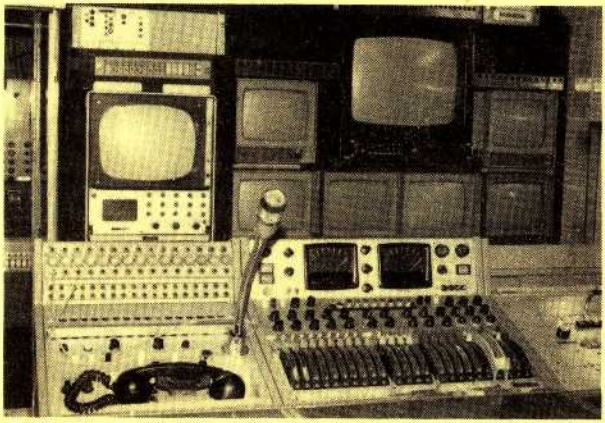
AN INVITATION..

THE BRITISH AMATEUR TELEVISION CLUB

to an

ATV EXHIBITION

TO BE HELD AT THE POST HOUSE HOTEL, LEICESTER, ON SUNDAY THE 4th OF OCTOBER 1981 AT 11am.



COULD YOU DRIVE THIS?

This is your chance to try. G8GQS's outside broadcast unit will be fully operational throughout the exhibition.

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A.T.V. EX
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OCT 4th.

DEMONSTRATIONS OF MEMBER'S EQUIPMENT* INCLUDING JOHN (circuit notebook) LAWRENCE WITH HIS COLOUR DISPLAY. DON'T FORGET THE OUTSIDE BROADCAST VAN - AMATEUR TV AT IT'S BIGGEST!

'AMATEUR TELEVISION HANDBOOK' FREE CLINIC. A CARD SYSTEM, (ISEP) CONTAINING HANDBOOK PROJECTS WILL BE ON SHOW. MEMBERS MAY BRING ALONG THEIR MODULES TO TRY IN THE RACK AND DISCUSS ANY PROBLEMS WITH THE DESIGNERS.

BATC CLUB SALES AND PUBLICATIONS WILL BE ON SALE INCLUDING ALL PRINTED CIRCUIT BOARDS AND SPECIAL COMPONENTS.

A CHANCE TO SEE DUD CHARMAN'S INCREDIBLE AERIAL CIRCUS. PLUS VIDEO TAPES OF AMATEUR TV INTEREST INCLUDING ONE FROM AUSTRALIA.

* Members who would like to put on their own displays are asked to contact Brian Summers, (G8GQS) to arrange table space and any other requirements. Tel: 0427 3940 (evenings).

HIBITION HOUSE Leicester

G4BLL's SSTV ROBOT 400 DEMONSTRATION. PC BOARDS FOR DO-IT-YOURSELFERS WILL BE AVAILABLE FOR THIS PROJECT.

N.B.T.V. DEMONSTRATION.
ATV OFF-AIR DEMONSTRATIONS.

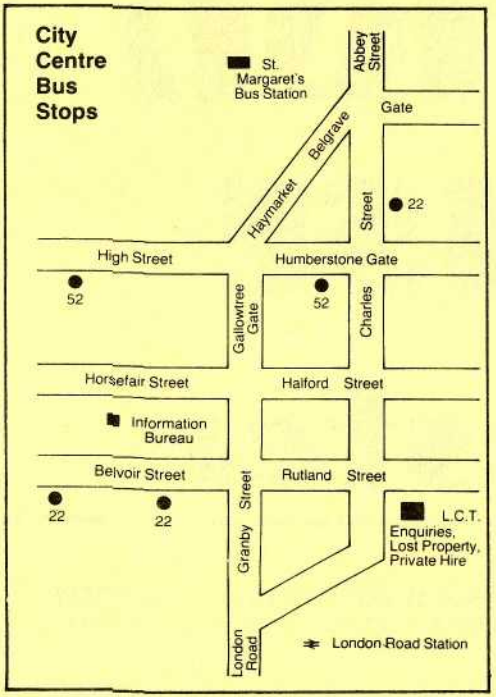
TRADE STANDS. SEE THE 'FORTOP' RANGE OF 70 and 23cm AMATEUR TV EQUIPMENT AND THE G8GQS GRAND JUNK SALE.

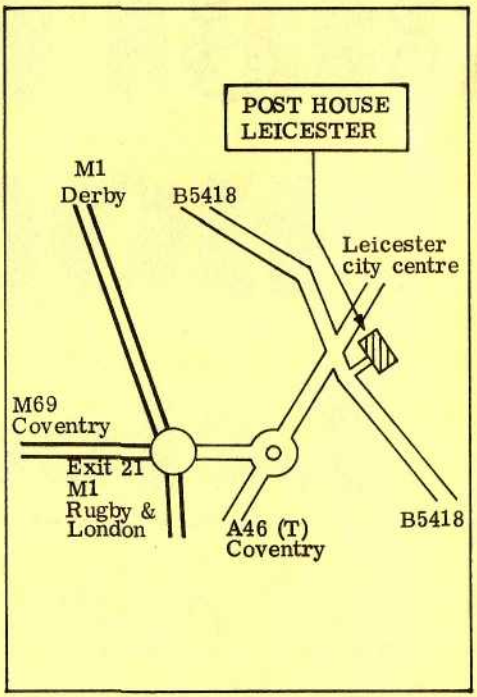
FREE TRADE AREA. BRING YOUR SURPLUS GEAR AND SELL IT YOURSELF AT THE FREE BRING AND BUY MARKET.

MEET THE BATC COMMITTEE AND DISCUSS THE NEW BAND PLANS!

THESE ARE JUST SOME OF THE ATTRACTIONS OF THE SHOW. THIS EVENT IS A 'MUST' FOR EVERYONE INTERESTED IN AMATEUR TELEVISION.

Further information may be obtained by contacting Brian Summers, (G8GQS) on 0427 3940 (evenings).





HOW TO FIND THE POST HOUSE HOTEL.

The hotel is located at the junction of Narborough road (A46) and Braunstone lane East (B5418).

BY ROAD.

If travelling on the M1 motorway, leave junction 21 and follow the signs to 'city centre' which is a dual carriageway. The Post House is about one mile along this road on your right at the junction with the B5418 signposted 'Aylestone'. There are traffic lights at this junction and you should turn right to gain access to the hotel. If travelling from the city direction, follow the signs for A46 Coventry and M1, these will take you along the Narborough road when the post house will be on your left at the junction with the B5418 as above.

BY TRAIN.

The bus service No. 52 leaves the city centre at 8 and 38 minutes past the hour, this takes about 15 minutes to reach the post house.

Return buses leave the hotel at 26 and 56 minutes past the hour for the city centre.

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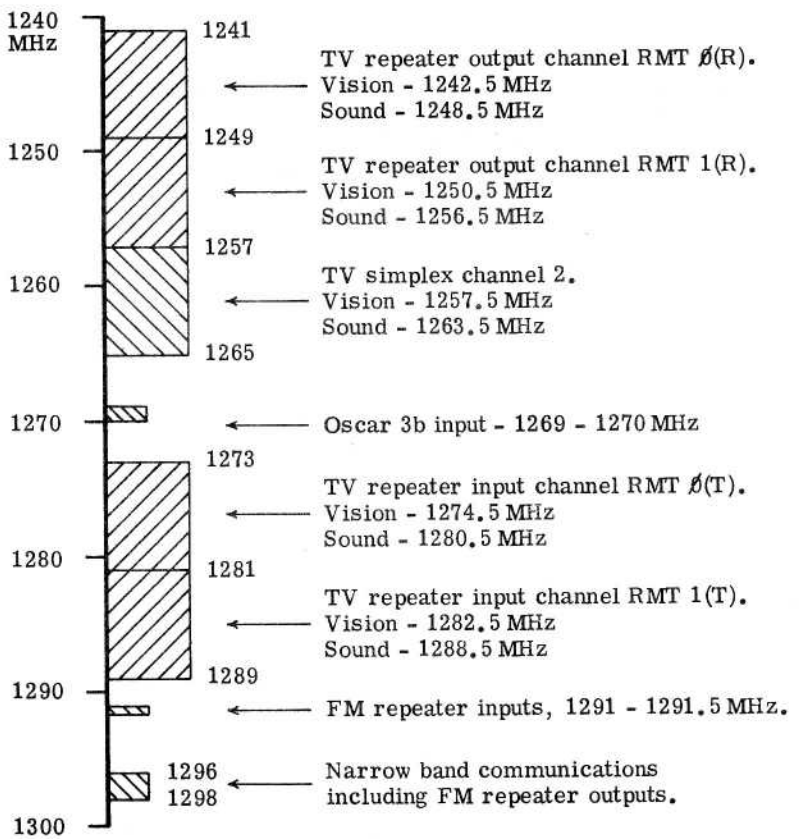
23cm BAND PLAN

Early in 1977 the BATC was involved in discussions with the RSGB and representatives from groups who were interested in establishing ATV repeaters. A report appeared in CQ-TV 98.

Unfortunately, no ATV repeaters are on the air and with the outcome of last years international conference on frequency allocations which resulted in a reduction of the width of the 23cm band, the original plan has had to be modified. A copy of the new plan is given below.



It is suggested that stations not within range of a TV repeater may like to use the OUTPUT channels for simplex working in addition to the simplex channel 2 shown. The channel 1265 - 1273 MHz may be used for simplex working until it is required for satellite communications.

The repeater input-output spacing has been reduced to 32 MHz with output towards the low end of the band. The intention is that the repeaters will transmit standard system I vestigial sideband. With the repeater inputs high as shown, if an amateur should transmit a double sideband signal it is unlikely to cause any problems and would not spread outside the band limits.

There are two 8 MHz channels shown between the repeater inputs and outputs, these are intended for simplex use. If Oscar 3 is operational the area around 1270 MHz should be avoided.

It is now thought that applications for ATV repeaters could be favourably received by the RSGB and Home Office.

Presently, firm proposals have been received from two groups with three others showing interest.

Any other groups who have a genuine interest in applying for an ATV repeater licence can contact Graham Shirville G3VZV, who is acting as co-ordinator between the BATC and RSGB on the subjects of repeaters and other "on air" matters. Graham is a member of the RSGB VHF committee and repeater working group as well as being a BATC committee member.

BATC PRIZE WINNER.

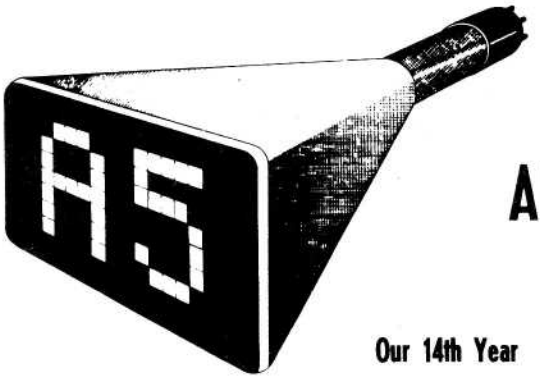
Paul Marshall, a BATC committee member was one of four prize winners in the 1981 Design Council Molins Design Prize competition. The competition is designed to encourage interest in the principles and practice of good engineering design.

Paul's project was to design and build a UHF TV transmitter to system I specifications, suitable for amateur construction (and therefore low in cost) and working in the amateur 70cm band. Paul achieved this while working as a student at Plymouth polytechnic, sponsored by Marconi.

Apart from amateur use, the transmitter would be suitable for closed-circuit and surveillance work. The general circuitry consists of RF vision signal processing and sound signal processing stages; IF modulation and IF VSB filtering were adopted. Using a common crystal to generate the IF and heterodyne frequencies is thought to be an original idea.

The prototype transmitter worked well. The judging panel considered that the project showed considerable originality in the sophistication of the circuitry design over a wide range of frequencies.

from Electronics Weekly 18th Feb. 1981.



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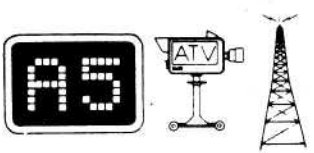


Amateur Television Magazine

DEVOTED TO HAM TV

A.B.C. COLOUR MIXER

John Goode.

INTRODUCTION

Following on from the article explaining the principles of colour mixing (CQ-TV 114), here are full details of all circuits required for an ABC mixer as shown in fig 6b of that article. The mixer provides four corner-wipes or external keying on banks A & B, with mix to bank C. At the suggestion of Norrie Macdonald GM4BVU, the reference source has been hard-wired to input 1, instead of being made switchable. This slightly simplifies the input matrix.

As implied in the last article, colour signals (particularly test-signals such as colour bars), can cause difficulties with breakthrough due to the high energy at 4.43 MHz (colour sub-carrier). Consiquently, certain precautions have been taken in this mixer to overcome these problems that make the design slightly more complex than it might otherwise have been. These features will be explained in the appropriate circuit descriptions.

Fig.1 is a block diagram showing how the circuit is sub-divided into boards. In the prototype all circuits were built on 0.1" matrix copper-strip veroboard. (If anyone is keen enough to lay out PCB's, please let me have copies!).

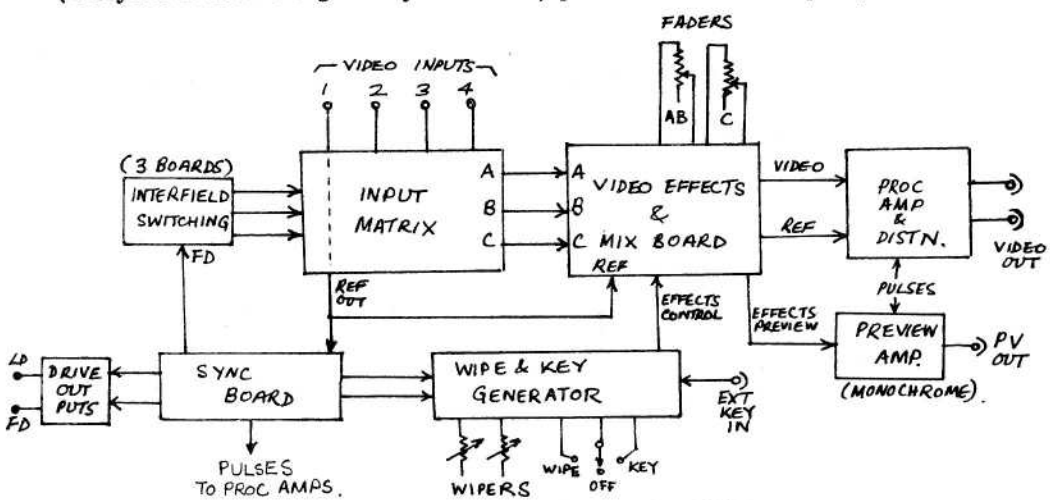


Fig.1 BLOCK DIAGRAM OF ABC COLOUR MIXER.

CIRCUIT DESCRIPTION

POWER SUPPLY

Because of the problems of crosstalk getting between circuits via the power rails, it was decided that, wherever practical, use would be made of the 78Lxx and 79Lxx series of 100mA plastic regulators mounted actually on the boards themselves. For instance, most of the video circuits use ± 5 volt rails; they are fed with ± 9 volts, and reduced to ± 5 volts on each board.

As a result of the above philosophy, the power unit provides four voltages, each to be reduced on the boards as necessary. These voltages are ± 9 volts stabilised, and ± 17 volts (nominal) unstabilised. Remember when mounting the 7805 positive regulator, that the 'ground' or 'common' terminal (and the body) will be at +4 volts, and must be insulated from the heat sink.

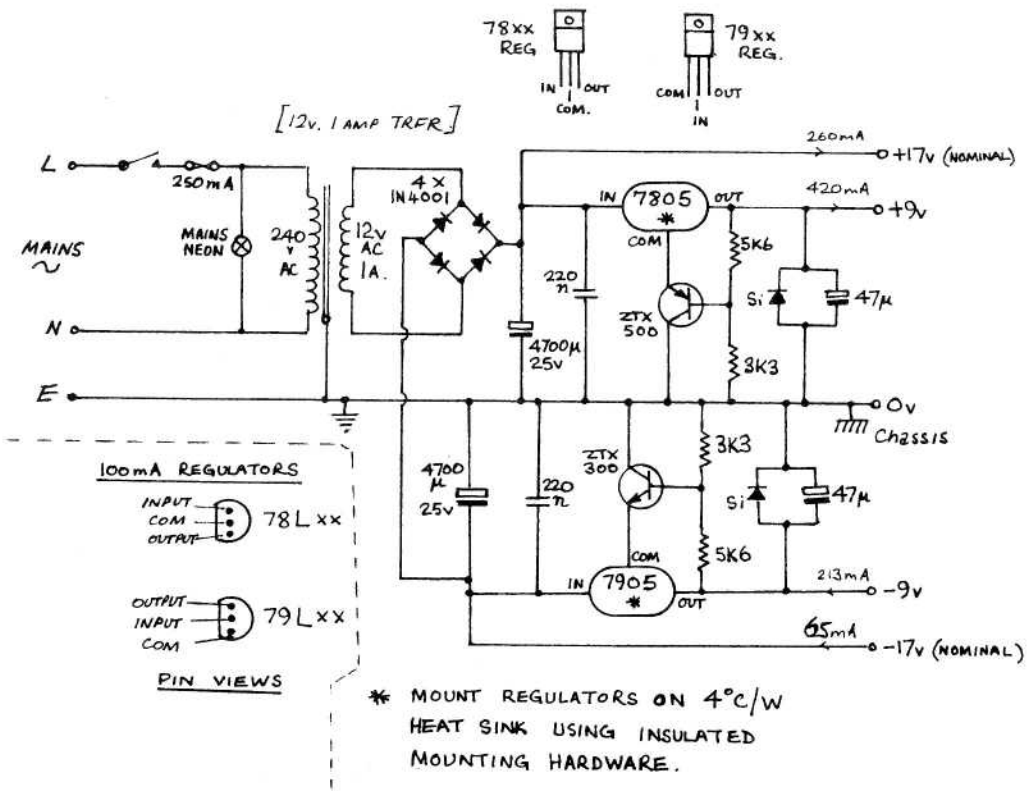


Fig.2 POWER SUPPLY UNIT.

INTERFIELD SWITCH BOARDS

As the prototype has only four inputs, the package count can be reduced to three, ie. 74LS75 latch, 74LS20 gate, 74121 monostable for switch-on select. Each board has its own 78L05 regulator fed with +9v.

The buttons used were obtained from RS components and cost around £2 each. A possible cheaper alternative in the form of a push-to-make PCB mounting switch with square buttons, is available from Maplin (stock No. FF87U, FF92A, at around 35p), which can be mounted adjacent to an LED for indication. This switch has not been tried but it looks OK from the catalogue description. With a push-to-make switch the "button-priority" is lost (each switch should connect to ground when pushed), but with suitable button spacing double-selection is unlikely.

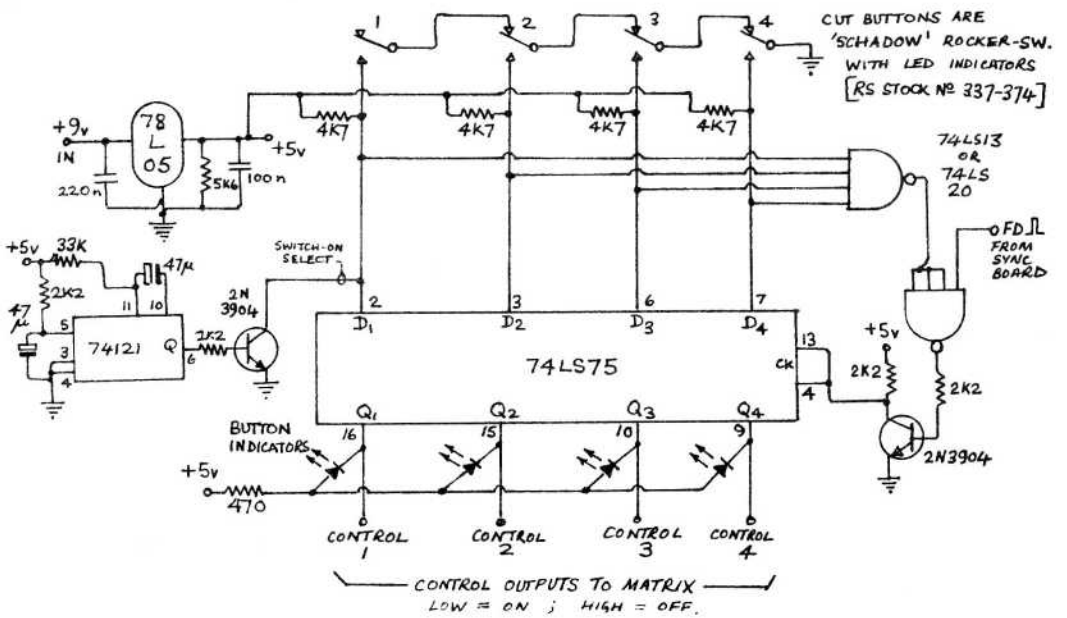


Fig.3 INTERFIELD SWITCH BOARDS (3 required).

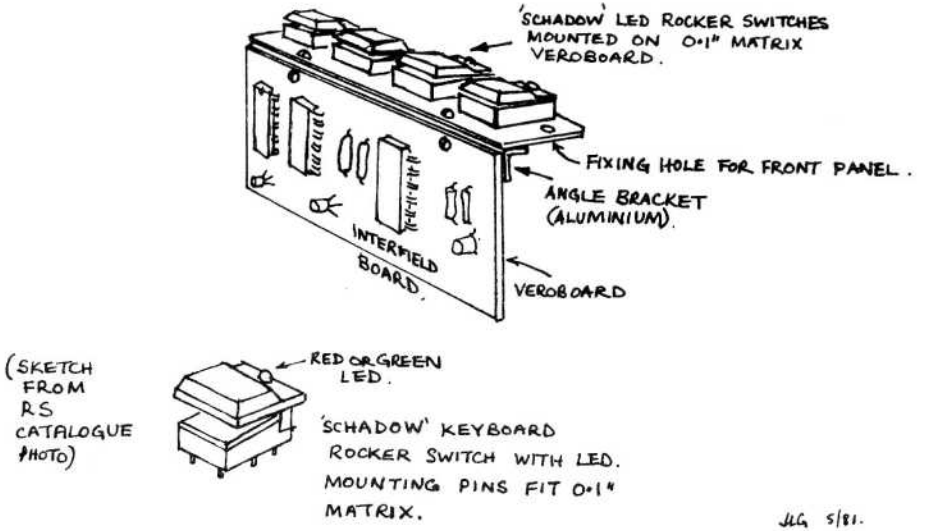


Fig.3a. INTERFIELD - SWITCH BOARD ARRANGEMENT

Fig.3a shows the mechanical arrangement used on the prototype for mounting switches and circuit-board.

INPUT - SWITCHING MATRIX (Fig.4)

The switching element used consists of two diodes and a transistor. This gives 3 - way isolation when 'off' - series, shunt & series - see Fig.4a, the equivalent circuit of an 'off' element. The reference output is wired from input buffer No.1 and consists of a similar circuit to the switch elements for identical signal delay. Fig.4 also shows the arrangement of 'mother' and 'daughter' boards used in the prototype. This kind of layout is necessary to avoid excessive cross-talk in switching matrices. The on-board regulator is a 78L12, and is fed from the +17v supply.

SYNC. REGENERATION BOARD (Fig.5)

The sync-seperator is fed from the +17v rail, which then feeds an on-board regulator for the TTL supply. A 7805 is used, as the current drain is around 160mA, too great for a 78L05. The regulator is fitted with a small heat-sink consisting of 2 sq ins of 18 swg aluminium bent to a U - shape.

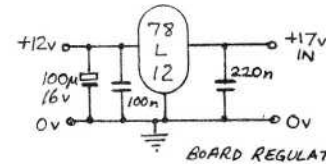
Fig.5 includes diagrams for the setting of the presets, and hopefully these are self-explanatory.

In the BW mode, the Colour/BW switch suppresses the burst-gate output, preventing the colour-burst gating in the processing amplifier. If the mixer is used with a BW reference signal, operating this switch gives a 'cleaner' backporch.

The last part of this article will be published in CQ-TV 116.

FIG. 4. INPUT SWITCHING MATRIX

ABC COLOUR MIXER



BOARD REGULATOR (MOTHER BOARD).

(INPUT BUFFERS ON MOTHER BOARD)

VIDEO INPUTS

INPUT 1

INPUT 2

INPUT 3

INPUT 4

28

A BANK "DAUGHTER" BOARD

'A' BANK OUT

TO VIDEO EFFECTS BOARD

'B' BANK OUT

'C' BANK OUT.

'B' & 'C' SWITCH BANKS IDENTICAL TO 'A' BANK — (BUILT ON "DAUGHTER" BOARDS)

CONTROL A1

CONTROL A2

CONTROL A3

CONTROL A4

CONTROL INPUTS FROM INTERFIELD SWITCHING — HIGH = OFF; LOW = ON.

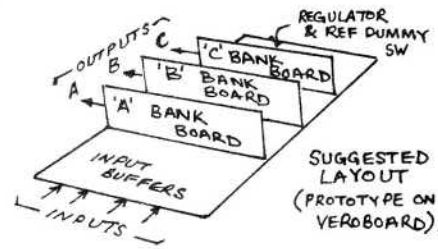
"REFERENCE" HARD WIRED TO INPUT 1.

(ON MOTHER BOARD)

(DUMMY SWITCH)

REF TO VIDEO EFFECTS BOARD & SYNC BOARD.

"MOTHER" & "DAUGHTER" BOARDS



SUGGESTED LAYOUT (PROTOTYPE ON VERBOARD).

FIG 4A SWITCH ELEMENT 'OFF'

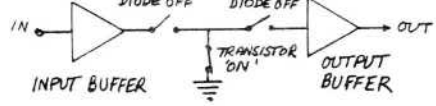
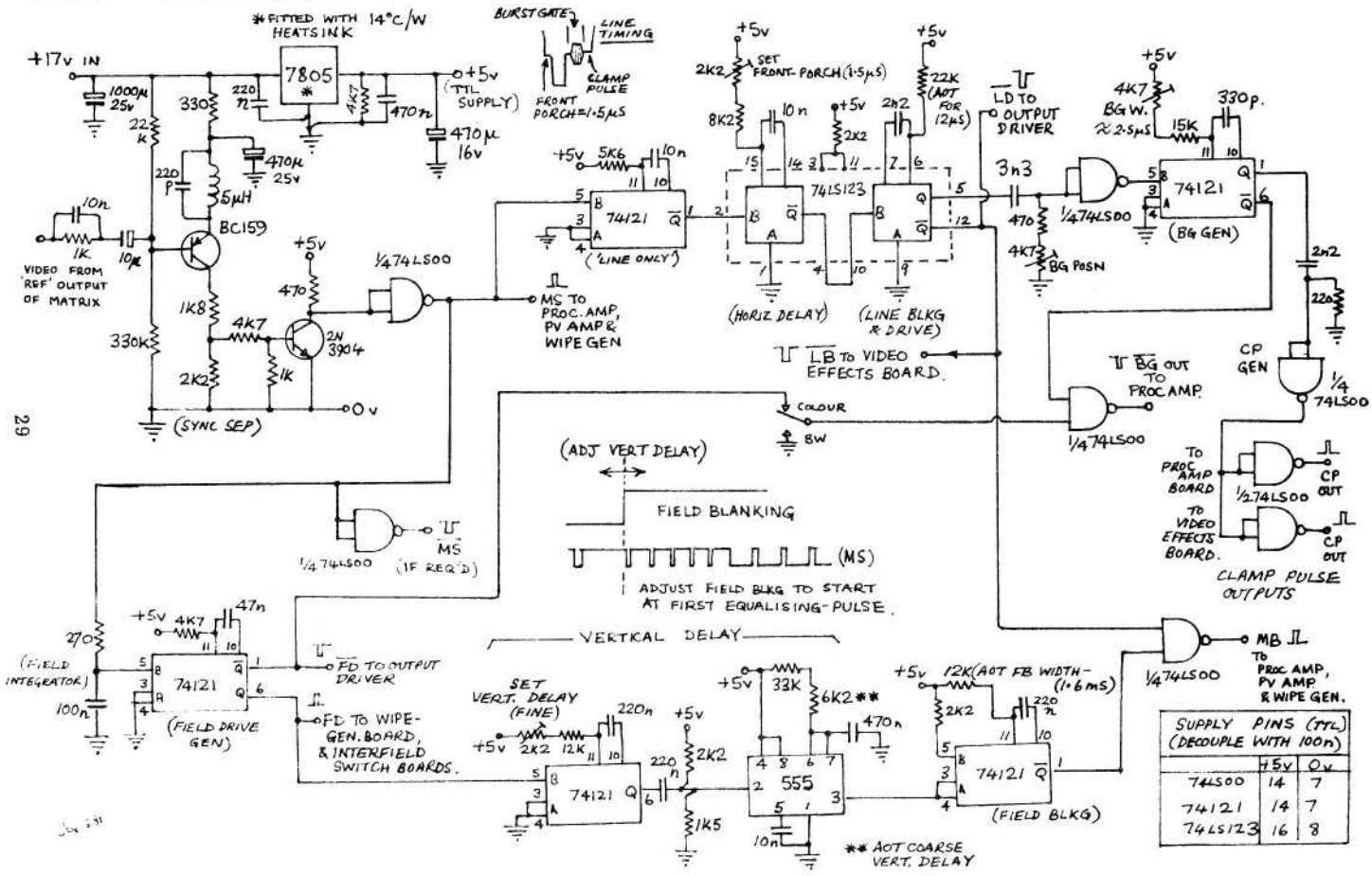


FIG. 5 SYNC REGENERATION BOARD (UPDATED) ABC COLOUR MIXER



CONTEST NEWS

BATC CUMULATIVE CONTEST - JANUARY / MARCH 1981

Well for the first time we were able to have a contest on which the first night coincided with a spell of good conditions. On the first night a large number of the two-way TV DX was worked at distances over the 200 kilometer mark. Of course there were the usual "gotaways" - notably F1EDM who was worked by G8VBC near Derby about 20 minutes after the contest finished and by G3YQC shortly after who managed a one way. The distance was over 400 kilometers.

Generally everyone appeared to enjoy the contest and it appeared to spur a number of new stations onto TV.

The full results are listed below:

POSITION	CALLSIGN	POINTS	QRA	FEET ASL	POWER	ANT	BEST DX (Km)
1	G8DTQ	7638	ZL60E	625	100	2X21E	G8DIR-238
2	G8VBC	6954	ZM13E	550	20	48M	G8DTQ-200
3	G4DYP	6608	ZM21G	500	12	88M	G8PTH-250
4	G8DIR	4544	YM27J	250	100	18E	G8DTQ-230
5	G3YQC	4211	ZM54B	400	10	18P	G8DTQ-146
6	G8MNY	3883	ZL60A	250	10	19E	GW8GKF-218
7	G4CRJ	3386	ZL38B	200	100	88M	G8GHH-124
8	G8MFG	2350	ZL45C	-	-	-	G8VBC-151
9	G8DLX	1702	ZM54B	400	10	18P	G8DIR-111
10	G8GHH	1366	AL57B	75	100	88M	G4CRJ-127
11	G8MNY/P	1296	ZN61F	1600	10	48M	G8VTN-108
12	G8DIR/P	1011	ZN53F	-	-	-	-
13	G8MMF	807	ZL50E	150	75	19E	G4CRJ-33

(BOTH PORTABLE STATIONS ONE SESSION ONLY!)

Congratulations go to Bryan Petifer G8DTQ who gained first place from Nr. Caterham in Surrey with Rod G8VBC Nr. Derby in second place.

The timing and duration appeared to satisfy most entrants although your scribe has received a doleful letter from G3PTD in Urmston, Manchester who objected to the change as his shift pattern of work meant he was only able to get on for one night. From his letter it would appear that there is absolutely no activity in his area - surely this cannot be true? I am sure G3PTD would be delighted to receive offers of skeds.

A statistic that may be of interest is that a total of 90 different callsigns appeared in the entries for the contest which shows how much activity there is (even if there is none in Merseyside !) A few more contest entries would have been nice though.

INTERNATIONAL ATV CONTEST - 12/13 SEPTEMBER 1981

This years contest is on the second weekend of September as usual and the rules shown below are unchanged from last year.

Can we please have some entries for 23cms this year?

Those of you who entered last years contest will by now have received a most attractive certificate produced by our German counterparts, so there is a 'prize' for everyone.

1981 INTERNATIONAL ATV CONTEST RULES

Contest period 12-13th September 1981 18.00 GMT Saturday to 12.00GMT Sunday.

SECTION A: TRANSMIT/RECEIVE STATIONS

SCORING

Logs have to be entered per band operated

A) Two-way QSO on 70cm: 2 points/km
B) Two-way QSO on 23cm: 8 points/km
C) Two-way QSO on 3cm: 16 points/km

Multi-op stations may only use one callsign.
Crossband QSO's must be entered in the log for the transmit band.
QSO's via repeaters do not count.

EXCHANGES

The following data is to be exchanged;

1) Code group, consisting of four digits, individually chosen by each entrant i.e. 1865 or 9732. All four numbers should not run consecutively. The code group must be exchanged in video only.
2) Call, QTH-locator, report, serial number starting at 001 should be exchanged in video and, if necessary, via phone.

Should one of the stations fail in receiving the picture of the other, the scores for both stations are to be halved.

144.75, 144.80 and 144.17 MHz are well-known ATV calling channels in Europe. Please QSY from these frequencies as soon as a QSO is established.

SECTION B: RECEIVE ONLY STATIONS

For SWL's the same rules as are applied.

Entrants for section B may not 'give' points to stations working in section A.

LOGS: Must include postal address, locator and station details and should be mailed not later than September 30th to:-

Graham Shirville G3VZV
18 Church End,
Milton Bryan,
Milton Keynes,
Buckinghamshire MK17 9HR

BATC AUTUMN CUMULATIVE CONTEST 1981

In view of the great enthusiasm shown for the spring contest we have decided to hold another before the end of the year.

The only change in the rules is to make it 3 sessions out of five nights (instead of 4 out of 7) and we have clarified a couple of ambiguities. So good luck and good condx.

BATC AUTUMN CUMULATIVE 1981

DATES: 7th, 15th, 23rd November and 1st and 9th December .

TIME: 20.00 - 23.00 GMT each day.

SCORING: Logs must be entered per band operated - a maximum of three sessions will count for points - if you operate more please enclose details for checking purposes.

A) Two-way QSO on 70cm: 2 points/km.
B) Two-way QSO on 23cm: 8 points/km.
C) Two-way QSO on 3cm: 16 points/km.

Multi-op stations may only use one callsign - only one location may be used during the contest. Crossband QSO's must be entered in the log for the transmit band.

EXCHANGES: The following data is to be exchanged:

1) Code-group, which consists of four digits, individually chosen by each entrant i.e. 1865 or 9732. All four numbers must not run consecutively. The code group must be exchanged in video only. A different code-group should be used for each session.
2) Call, QTH-locator, report, serial number-starting at 001 each session, this data to be exchanged via video or phone.

Should one of the stations fail in receiving the picture of the other, the scores of both stations should be halved.
144.75, 144.80 and 144.17 MHz are well-known ATV calling channels. Please QSY from these frequencies as soon as a QSO is established.

CONTACTS: The same station may only be contacted once per band on each night.

LOGS: Logs must include postal address, locator and station details (including code-groups used in each session) and should be mailed not later than 31st December 1981 to:-

Graham Shirville G3VZV
18 Church End,
Milton Bryan,
Milton Keynes,
Buckinghamshire MK17 9HR

Midlands RTS Lecture

Amateur television was the subject of the April meeting held by the Midlands branch of the Royal Television Society at Birmingham ATV studios. The lecture was given by BATC Secretary Trevor Brown.

Among the fifty or so attendees were some familiar faces such as G5KS, G8FNR, G8GLQ and G8GQS.

The lecture included video tape and colour slides depicting various aspects of amateur television including an example of the very high standards of colour SSTV achieved by G3NOX and a demonstration of the colour electronic test card designed for the club by Richard Russell and featured in the BATC's new 'Amateur Television Handbook'.

ATV in other countries was described and showed the 1978 French ATV convention and the incredible 70cm/23cm mobile TV station of F3YX. (see CQ-TV 108) The Australian ATV repeater system was shown and so was a video recording of one of the long-haul contacts made by VK7EM in Tasmania which helped to win him the first CQ-TV Gold award.

The lecture was well received and, judging by the number of 'handbooks' sold at the meeting, seemed to create much interest.

Mobile Voltage Regulator

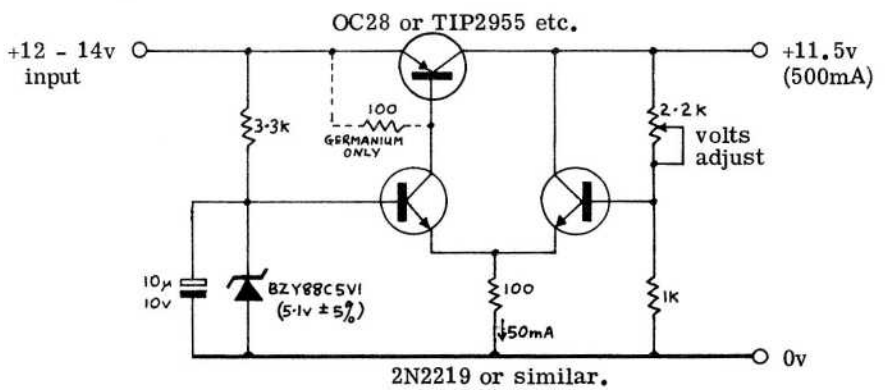
C.Brownbridge G6BIN

It is often necessary to derive power for portable video equipment from a car electrical system. The problem is that the actual voltage obtained from the car electrics can vary from around 11.5v to over 14.5v. Sensitive equipment such as the handbook PAL coder, vision switcher, and off-air receiver etc. cannot tolerate such a wide change on the supply rail.

Conventional three-terminal regulators require a drop of around 4 volts, therefore a car system will not drive such a regulator.

The circuit described requires very little volts drop and, if the output is set to 11.5v (usually quite adequate for most circuits) good regulation will be maintained down to the point where the battery becomes badly discharged.

The PNP power transistor may be any high current audio type. If a germanium device is used then the 100 ohm resistor (shown dotted) should be included. The two NPN transistors can be any audio types capable of dissipating at least 600mW. TO-5 transistors are to be preferred as they get quite hot.



Publications

THE FOLLOWING ITEMS ARE AVAILABLE FROM BATC PUBLICATIONS:-

AMATEUR TELEVISION HANDBOOK. Published by BATC, First edition. £1.50p members, £2. non-members. plus 35p postage and packing.

SLOW-SCAN TELEVISION. by B. J. Arnold G3RHI. Published by BATC. Second edition. 35p plus 14p postage.

CQ-TV BACK ISSUES: The following back issues are still available although stock of some are low: CQ-TV 68, 77, 82, 87 - 97, 99 - 109 and 111 onwards. Price.... up to 92, 25p. 93 onwards.... 50p. Please add sufficient postage.

REPRINTS. Photo copies of any article in past issues of CQ-TV can be supplied at 10p per sheet plus postage. Payment preferably in UK postage stamps.

INDEX. All main articles in past CQ-TV magazines including page count for all articles - essential if ordering re-prints. Price....50p. preferably in UK postage stamps. Plus a large (9"x7" minimum) S. A. E.

ALL PUBLICATIONS ARE AVAILABLE FROM:

BATC Publications.
14 Lilac Avenue,
Leicester, LE5 1FN

Will overseas members please add sufficient extra to cover the cost of postage on books ordered, especially for air mail.

AUSTRALIA

Would Australian members please note that the BATC 'Amateur Television Handbook' is available directly from the Wireless Institute of Australia at the following address: P. O. Box 150, Toorak, Victoria 3142.

The price for the book is $4.60 plus postage.

This address is for handbooks only. All orders for other publications, Club sales items and membership subscriptions should continue to be sent to the UK.

AUSTRALIAN TV TAPE

John L. Wood G3YQC

I have recently had the opportunity of seeing a video tape programme about amateur television in Australia. The programme is in two parts and depicts Australian amateur TV in both Adelaide and Melbourne.

Part one, narrated by John Ingham VK5KG, gives background information on callsign allocation and the meaning of the different suffixes, TV standards, and frequencies used by Australian amateurs.

As in this country, operation seems to be concentrated on 70cm but 23cm is being used increasingly.

John describes the history of ATV in Australia and said that it was all started back in January 1929 by VK2KI. Unfortunately no records of those times exist and the first pictorial record of ATV was in the form of a cine film of VK5ZEY on the old one meter band taken in the early 60's. That station had a very impressive array of equipment. A short snippet of film is also included showing an off-air transmission of colour TV taken about ten years before the introduction of colour in Australian broadcasting.

VK5RTV, the Adelaide TV repeater is demonstrated. It uses 70cm for the input and transmits on the 579 MHz band. The repeater only operates at certain times of the day and is automatically controlled by a time clock. The station's main ident signal consists of colour bars with a superimposed identification caption, the ident shuts down when a video signal appears on the input frequency.

The tape shows John VK5KG, Ray VK5ZEF, Pat VK5ZFT, Lee VK5ZSA and VK5ZHL all working through the repeater. A programme of technical interest is broadcast through the repeater each Wednesday evening - a sort of magazine on the air!

The narrative is then taken up by Ron Harrison VK3AHJ in Melbourne who has some very nice things to say about the BATC - thanks Ron. It seems that there are a lot of mosquitoes in Melbourne judging by the number of times Ron has to scratch his arm whilst he is on camera!

The Melbourne ATV scene is described and a map showing the distribution of ATVers is displayed. Apparently a few years ago ATV in Melbourne was at a very low ebb so Ron started a recruiting campaign, the result was that in three years the ATV population leapt from six to more than ninety stations!

We are then shown around the shacks of VK3AHJ and Ian VK3ATY. Melbourne amateurs seem to do very well with the surplus equipment available on their second-hand market judging by the very nice gear in the shacks.

After the off-air demonstrations there is a film of transmissions from VK7EM in Penguine, Tasmania (the holiday isle!). The pictures were filmed off the screen by a station just North of Melbourne, a distance of some 450Km. VK7EM has to work TV when there is an opening since there are no local stations to talk to. VK7EM incidentally was the first station to attain the BATC 'Gold' award.

At the end of the tape John Ingham promised another, perhaps showing other areas of ATV activity in Australia.

Any group wishing to borrow the tape, which also includes a similar programme made by BATC members - a copy of which has been sent to Australia - should contact Trevor Brown G8CJS, 25 Gainsbro Drive, Adel, Leeds, LS16 7PF.

The video tape is in PAL colour and is available on both VHS and Betamax formats.

PCBs

The following printed circuit boards and components are available from club sales:

'AMATEUR TELEVISION HANDBOOK' projects.		
Wide-band 70cm tuner PCB		£3:00
Amateur television receiver PCB		£1:50
Electronic character generator PCB		£3:00
Character generator memory PCB		£3:00
Colour test card PCBs (set of 3 double sided)	p&p 50p	£15:00
Horizontal aperture corrector PCB		£3:00
Video switching unit PCB		£3:00
P. A. L. colour coder PCB		£3:00
ALL ABOVE PLUS 25p POSTAGE.		
74S471 PROM. pre-programmed for colour test card		£10:00
TMS4036 memory IC for character generator memory		£5:00
BOTH ABOVE PLUS 20p POSTAGE.		
PROJECT 100.		
Sync pulse generator PCB		£3:00
Pattern generator PCB		£4:50
5MHz and 4 fsc crystals, each		£2:75
ALL ABOVE PLUS 25p POSTAGE.		

Mr. C. G. Dixon (BATC club sales). 'Kyrles Cross', Peterstow, Ross-on-Wye, Herefordshire. HR9 6LD.

Would overseas members please allow sufficient postage or send for quote. Cheques should be for UK banks only please. ALL CHEQUES PAYABLE TO BATC.

PLM

RE-CONDITIONED C.C.T.V. EQUIPMENT.

- 2/3" VIDICON CAMERAS FROM £65.00
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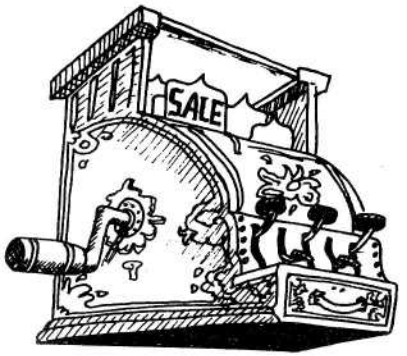
V.C. 30	£4.00
V.C. 45	£4.50
V.C. 60	£5.00

- MINI-SYSTEM KITS INCLUDING CAMERA, MONITOR, 10metres CABLE, LENS AND WALL BRACKET £125.00
- AUTOPAN WITH CONTROLLER £85.00
- VIDEO - R.F. CONVERTERS £12.50

P.L.M. COMMUNICATION SUPPLIES

P.O. Box OL7I, OLDHAM, OLI T2A.

Tel. : 061-624 3333



MARKET PLACE

ADVERTISING RATES:
Classifieds - 3p per word.
Full page (cover) - £20.
Full page (inside) - £18.
Smaller displays - proportional.

Advertisements are placed in this column free of charge to paid-up members. If possible an address label from a recent CQ-TV should accompany your ad.

FOR SALE

RBM COLOUR MONITORS, 19", RGB input, ex broadcast. Working £40, not working £20-25.
Lots and lots of bits and pieces and panels for most makes of 'domestic' colour and mono T.V.'s. eg. A56-120X colour tubes £17; Scan coils £1.50; UHF-VHF varicap tuner (Telefunken) £1.25 brand new with data. Complete colour T.V.'s from £10.

Phone Mr. Fox,
W.M.T.V. Ltd. 021-444 6464

TWO AMPEX VR7003 1" videotape recorders, both working except one requires new head, (these use VPR-1/ VPR-2 tape!). Prefer collection or will deliver over modest distance, £100 O.N.O. Gordon Sharpley G3LEE 52 Ullswater Road, Flixton, Urmston, Manchester.

PHILIPS N1500 home video recorder in good working condition, with new heads recently fitted, together with workshop manual. £150.
Also many assorted T.V. Cameras various conditions and prices.
Trevor Brown. G8CJS.
Tel: 0532-670115 (Leeds)

FREE TO BATC MEMBERS who can collect the following: 1 x Pye 19" colour monitor fitted with PAL decoder and spare panels and manual. 2 x Pye monochrome monitors model 2822 including manual. 3 x 30mm Plumbicons R.G.B. condition unknown. WANTED and Quadruplex VT spares especially early "intersync" and "amtec" units. Please write to:
A. Goldrick. 64 Shakespear Drive, Kenton, Harrow, Middx. HA3 9TR

DL2RZ fast-to-slow scan converter with all ICs and full memory, 5Amp regulated power supply built in. Needs alignment. With all instructions and circuit diagram. £50. or offers.
P. Kaminski GM3PIB. 5 Tytler Street, Forres, Morayshire, IV36 0EL

SSTV ROBOT 300E fast-slow-fast converter, $\frac{1}{4}$, $\frac{1}{2}$ full pix, 128 or 256 lines, stores pix with power off. £350.
Also Microwave Modules 2m to 70cm 10 Watt TRANSVERTER. £145 or part exchange VHF multimode, HF transceiver Trio equipment preferred. Buyer collects. J.Woodcock. 216 Henson park, Chard, Somerset, TA20 1NP

SSTV the easy way! Robot 400 PC boards. Genuine Robot manufacture £65 plus VAT, including technical information and postage. Also sets of memories (16 x 4030/4060) ex-equipment but guaranteed £27 per set including sockets.
Peter Burnet G4BLL, 21 South Cross Road, Cowcliffe, Huddersfield, HD2 2PH

TELEQUIPMENT D43R dual-beam oscilloscope. TD42 timebase, 2 type G and 1 type C amplifiers. Very good condition, with manual. £85. O.N.O.
CINTEL 28881 21" B/W monitor. With manual. £10 O.N.O.
FERROGRAPH 20+20W stereo amplifier With manual. £45. O.N.O.
TROLLEY, large, 3 shelves, built like a tank. £6.
Mark Lee. 34 Beechwood Avenue, Kew, Richmond, Surrey. 01-876 4379 evenings.

WANTED

HELP!! Need assistance in setting-up a MK SSTV monitor. ANY help gratefully received, also camera or advice on setting-up for F/S conv etc.
Bill Ball G8XCF. 94 Faringdon Ave., Blackpool, Lancs. Tel: 404459

UNIT HV920 for I.B.M. VDU and keyboard 2260 or any other units to complete.
Also circuit for E.M.I. camera I.T.V. type 8.
Mr. T. Roche. Tel: 021-707 3906.

LINE OUTPUT transformer for Pye 171 monitor Part No. AG10093.
J.Rose. 61 Raven Road, Stokenchurch, Bucks. Tel: Radnage 2305

FREE-EXCHANGE-WANTED.
FREE, for the cost of postage CQ-TV magazine No.102 & 103.
WANTED, CQ-TV No. 108 & 110 eventually for an exchange.
D.Reyter ON6RD, 69 rue Mitoyenne, B-4840 WELKENRAEDT, Belgium.

GRUNDIG, PHILIPS, FERROGRAPH audio tape recorders. Any members requiring parts for this type of machine should contact me as I have a quantity suitable for dismantling for spares.
J.Brown, G3LPB. 1 Silverdale Road, Falmouth, Cornwall. TR11 4HW

ATV TRANSMITTER.
30 stations are now using the PC ELECTRONICS ATV transmitter. It puts out a clean 10 watt signal on 70 and is extremely compact. Just connect up a camera, aerial and 12 - 14volts DC and you're transmitting TV. No hassles trying to convert something which wasn't designed for TV, a guaranteed 8 MHz bandwidth and the confidence of using proven technology. It's yours for £68.50p. Please send large SAE for full details to: BLEAN VIDEO SYSTEMS. (G8PTH), 4 Mount Pleasant, Blean Common, Canterbury, Kent. CT2 9EU

SITUATION VACANT??
As an ex-broadcast engineer now out of the "current scene" I felt I should at least make some use of my knowledge.
I would be particularly interested in contacting any members who have a professional involvement in broadcast TV or who have the capability and resources to occasionally work as technicians on CCTV projects and security installations of a short-term nature, to write to me at my company address below.

R. P. Bown.

Cyberscan International, 35 Dell Farm Road, Ruislip, Middlesex, HA4 7TX
Tel: (08956) 73265

CLUB SALES

CAMERA TUBES	Price	Postage
EEV Leddicon	£ 82.	nil
½" E.M.I. 97777 Ebitron	£ 28.	nil
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1" E.M.I. 9677 amateur grade vidicon	£ 15.50p	nil
1" E.M.I. 9728 amateur grade vidicon	£ 15.50p	nil
4½" E.M.I. 9565 Image Orthicon	£ 10.for 2,	buyer collects
1" E.M.I. 9706 amateur grade vidicon (5" version)	£ 15.50p	nil
VIDICON SCAN COILS		
1" ex-industrial (limited number only)	£ 6.	£1.10p
2/3" E.M.I. ex-industrial (limited number only)	£ 6.	0.72 p
ACCESSORIES		
Paxolin sockets for 1" or 2/3" vidicons	0.32p	.14 p
'C' mount lens mounts	£ 1.00	.20 p
STATIONARY		
BATC headed notepaper & envelopes (50 sheets)	£ 1.75	£1.10p
BATC test card	.50p	.26p
BATC reporting chart (illustrated)	.12p	.18 p
Lapel badge - diamond shape (button hole type)	.40p	.14 p
Lapel badge - latest circular shape (pin type)	.40p	.14 p
Lapel badge - new pin type with call sign	temporarily discontinued	
BATC key fob	.50p	.14 p
Equipment stickers - latest circular shape 1" dia	.15p	.14 p
Windscreen stickers - latest circular shape 2½" dia	.10p	.14 p
Ties - printed with the latest club badge	£ 1.80p	.26 p

Will overseas members please ask for a quotation of postage costs before sending their cash. For small items it is cheaper to send several items in the same package, please try to estimate the correct amount. Our thanks go to those members who estimate on the high side and suggest that any balance be put to club funds.

Please send orders to; Mr. C.G. Dixon (BATC club sales). Kyrles Cross, Peterstow, Ross-on-Wye, Herefordshire. HR9 6LD.

Cheques should be made payable to "the BATC" and should be drawn on English banks.

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* COVERS WHOLE OF 70cms
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* 12 VOLT @ 50mA
* 110mm x 60mm x 30mm
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The TVC 1296/40 is a high performance unit which enables 23cm Amateur Television reception on a standard U.H.F. TV receiver. The down converter approach to 23cm A.T.V. offers considerable advantages over other methods of receiving TV signals on this band. Send for details.

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composite or non-composite output.
240v supply

£55·00 +p&p
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CTC 4000
⅔" vidicon
1v into 75ohm output
small size
supplied with lens

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1" vidicon
vidicon racking control
1v into 75ohm output
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12·5mm @ f1·9 ideal for shack use	£30·00 +p&p
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Brand new monitors suitable for the above cameras or computer use, send for details

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